

## ABSTRACT

### METHOD COMPARISON TO DETERMINE STREPTOMYCIN SULPHATE CONCENTRATION IN SHRIMP MATRIX BETWEEN CONTACT AND IMMERSION TLC-BIOAUTOGRAPHY

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Thin Layer Chromatography (TLC)-Bioautography contact and immersion have been used for identification and quantification of streptomycin. Validation parameters for both of the methods are limit of detection (LOD), linearity, accuracy (recovery) and precision (CV), which are used to verify the methods using literature as reference. Thin Layer Chromatography of streptomycin sulphate has been carried out by using silica gel F<sub>254</sub>, KH<sub>2</sub>PO<sub>4</sub> 7,5 % as mobile phase. Microorganism which is used for this research is *Escherichia coli* ATCC 8739. The Retardation factor (Rf) of streptomycin sulphate obtained is 0,51. Limit of Detection of streptomycin sulphate with TLC-Bioautography contact and immersion respectively are found to be 30,4 ppm which equals to 0,24 µg and 20,3 ppm which equal 0,16 µg. Streptomycin's regressions equation line is  $y = 14,7212x - 23,2398$ ,  $r \text{ value} = 0,9992$  and  $V_{x_0} = 0,4 \%$  for TLC-Bioautography contact,  $y = 12,6655x - 18,5557$ ,  $r \text{ value} = 0,9994$  and  $V_{x_0} = 0,3\%$  for TLC-Bioautography immersion. Accuracy tests at concentration of 160 – 200 ppm of TLC-Bioautography contact and immersion have resulted  $(86,93 \pm 1,60)\%$  and  $(96,42 \pm 0,65)\%$  of recovery, respectively. The precision (CV) of TLC-Bioautography contact and immersion are found to be  $(2,39 \pm 1,79) \%$  and  $(0,53 \pm 0,17) \%$ . In conclusion, all validation parameters are found to be appropriate according to literature, except the accuracy of TLC-Bioautography contact. There is a significant difference between TLC-Bioautography contact and immersion for determining streptomycin sulphate in shrimp. TLC-Bioautography immersion is recommended for screening and quantitating the residue of shrimp (atau shrimp residue juga boleh) as this method is more sensitive and resulting better recovery.

**Keyword : Streptomycin, Validation, Contact TLC-bioautography, Immersion TLC-bioautography, Shrimp.**